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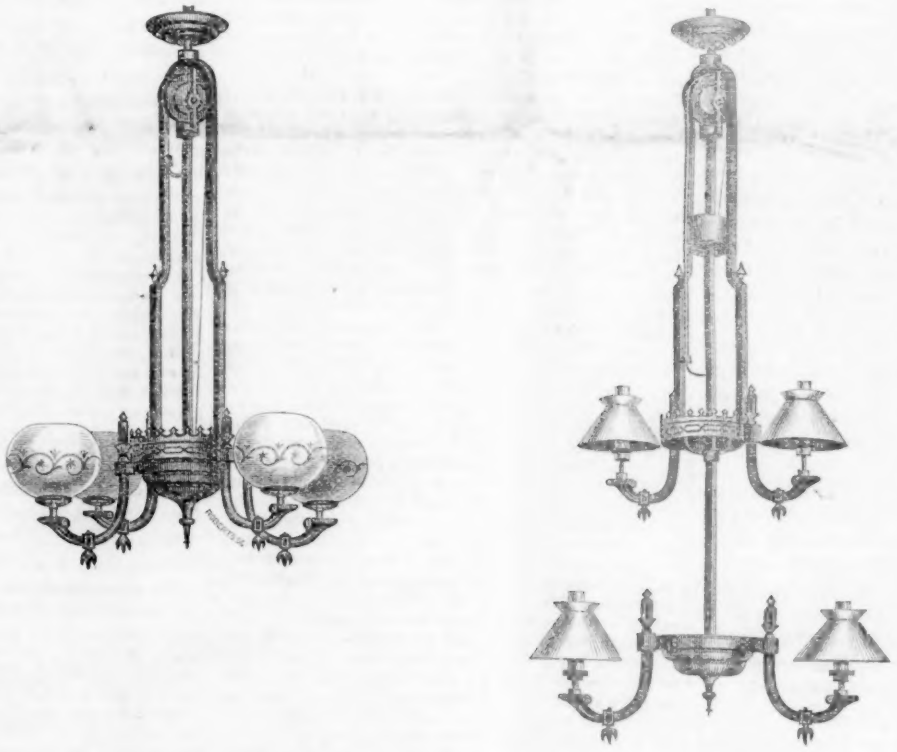
Bliss' Improved Attachment for Gas Chandeliers.

It is positively refreshing to find a really valuable and fundamental improvement in the apparatus for fixtures employed for burning gas for illuminating purposes. Comparatively but little change has taken place in the arrangement for convenience or utility of our multitudinous forms of gas fixtures and devices for gas illumination, for the last quarter of a century. The ingenuity of inventors has run wild, principally in multiplying and changing the devices and ornamentation of chandeilers, candelabras, brackets, stand lights, etc.

We herewith give illustrations of an improvement more in the right direction. It not only makes a beautiful device of itself, but it is protean in its nature, and while it can be readily and completely changed in form and style by a touch, it at the same time greatly increases its positive utility and convenience, by converting a pendant or chandelier into a single, double, or treble drop-light. The chandelier is divided, a portion of the lights remaining stationary, while a portion by a simple and efficient mechanism, are lowered as a drop, to any point required.

The nature of the invention, in the language of the patent, "consists in the construction and operation of a new and useful attachment for gas chandeliers, for the purpose of conducting gas from the supply pipe to a drop-light, usually placed below the main or principal burners of a chandelier."



BLISS' IMPROVED ATTACHMENT FOR GAS CHANDELIERS.

As ordinarily constructed, a drop-light is attached to a telescopic tube, sliding up and down vertically upon its attachment, to govern the position of the drop-light; the joint being packed with suitable material, with a view to make what is termed a "gas-light joint," which seldom is so in practice, and never for any length of time, owing to the friction and wearing of so great a sliding surface.

The first engraving shows a four light chandelier in its natural position. The second figure shows the change when two lights are left in position, while two lights are dropped down to form a convenience for all the purposes of a drop-light.

In this improved apparatus the gas descends from the supply pipe and passes through the gas-way in the frame to the hollow journal communicating with the hollow wheel shown at the top of the fixture. This wheel is supplied with and attached to one end of a flexible tube which is coiled upon it, while the other end is attached to the hollow tube or frame of the drop-light. As the latter is drawn down, the flexible tube is unwound from the wheel, while the cords suspending the weight underneath is wound upon the small discs of the wheel in the opposite direction, to counterbalance the weight of the drop light and attachments.

The gas thus passes through the flexible tube to the lower section or tube, and then in the usual way through the arms of the drop to the burners. In this way overcoming all the objections of the old mode, besides its greater beauty and simplicity.

Numerous styles of these drop-light are made—some with one central drop-light, and two, three or four stationary lights, and on the contrary from one to several of the lights may be arranged to drop, according to the fancy or requirements of the user.

This invention was patented by Alfred Bliss, on the 5th day of November, 1867, and is manufactured in its various styles by Messrs. Bliss & Co., manufacturers and wholesale dealers in chandeliers and gas fixtures, etc., 95 Bleecker street, New York.

A New Machine for Charging and Drawing Gas Retorts.

The London *Engineer* says that a most successful trial was recently made at Messrs. Handyside & Co.'s foundry, Derby, of a machine for charging and drawing gas retorts—the invention of Messrs. Holden & Best, and intended for the "Alliance" Gas-works, Dublin. The object of this apparatus is to dispense with the exceedingly laborious duty of charging and drawing gas retorts by manual labor. It consists of a wrought-iron carriage, constructed to run on rails laid in front of the retorts the whole length of the retort-house. Three long wrought-iron arms, or rakes, and three long scoops are carried by frames made to traverse the main carriage in the direction of the retorts. The apparatus is furnished with a pair of vertical high-pressure engines and boiler. The action is as follows: The three scoops are first charged with coal by means of a hopper, supported on pillars secured to the framework of the machine, and these machines are then propelled by the engines through suitable gearing to the extremities of the retorts, when they are then suddenly inverted by a self-acting motion, and the contents of the scoop regularly deposited from one end of the retort to the other. The engines then propel the whole apparatus along the rails until the three rakes are brought opposite the next set of retorts, consisting of three placed one above the other. The three rakes are then propelled by the engines until the extremities of the rakes reach the extremities of the retorts; flaps at the end of the rakes, which until this moment were horizontal, are, by means of a hand-wheel, brought into a perpendicular position. The engines are then reversed, and the rakes recede, bringing with them the contents of the retorts, after which the engines propel the apparatus along the rails until the scoops are brought opposite the retorts that have just previously been raked, and are then again recharged. The operation of charging and drawing the retorts, opening and closing the mouths, and completing the whole operation, occupies only nine minutes for a bench consisting of nine retorts, the operation for a set of three being accomplished in the same time.

Purification of Gas.

[From "Clegg on the Manufacture of Coal Gas."]

(Continued from page 162.)

Several attempts have been made to overcome the objection to purification by lime, by ventilating and deodorizing the lime refuse. A patent for that purpose was taken out in October, 1847, by Mr. G. H. Palmer, his plan being to draw or force air through the foul lime, so as to oxidize the sulphuret of calcium and deodorize the mass. About the same time Mr. F. J. Evans, who was then the assistant manager of the Imperial and Continental Gas Company's works at Berlin, adopted a plan nearly similar, which he afterwards carried into practical operation at the works of the Chartered Gas Company at Westminster, in the following manner: The current of foul gas having been cut off, and the purifier thrown out of connection with the gas-holder, a valve was opened which established a tubular communication between the purifier and the chimney of the works, whilst at the same time air was admitted by the same opening, through which the foul gas had previously passed. The effect of this arrangement was, that any existing ammonia was driven off as hydro sulphate of ammonia, the sulphuret of calcium became hyposulphite of lime, whilst the carbonate and hydrate of lime remained unaffected, so that the mass could be used over again in the purifier. The economy of this process was found to be such, that a bushel of lime purified 15,000 cubic feet of Newcastle coal-gas, whilst the removal of the gases from the ventilated lime produced no nuisance.

This plan of neutralizing the refuse and thus removing the objection to the purification by lime, has not been yet sufficiently appreciated, and it is capable of being worked out with further advantage. Thus, after a second ventilation, the refuse must contain an appreciable quantity of hyposulphite of lime—a substance well adapted to absorb ammonia from impure gas if applied between the condenser and the purifier, as it would then generate carbonate of lime and hyposulphite of ammonia, and form a very valuable and cheap manure. The hyposulphite of lime might also be easily abstracted from ventilated gas lime by the action of warm water, and if this solution were precipitated carefully, by the addition of sulphate or carbonate of soda hyposulphite of soda might be obtained from the clear fluid by evaporation, and that substance has an extensive sale among paper-makers under the name of *antichlore*. There seems, indeed, no reason why the impurities of coal-gas should not be turned to a profitable account, and the item "expense of purification" cease to make its appearance in all well-conducted gas establishments.

We shall now proceed to consider the methods of purifying gas by metallic salts, and more especially by the oxide of iron, which has lately been extinsively used in populous localities, where it is an important object to prevent nuisance by the escape of sulphuretted hydrogen into the atmosphere. All the metallic oxides, in certain states, possess the power of purifying gas from sulphuretted hydrogen, the principal ground of selection being the relative cheapness of the material.

So much has been said about the oxide of iron process of purification, and there are so many disputing claimants to its first introduction, that a brief history of the different plans that have been proposed for purifying gas by that agent seems indispensable.

Some attempts to apply oxide of iron in the purification of coal-gas were made in Paris before any patents for its use were obtained in England, but the first person who mada a definite claim to the invention was Mr. Phillips, of Exeter, in 1835. Mr. Phillips claimed the use of oxide of iron in a wet-lime purifier, but the process as thus applied was of little value. In July, 1840, Mr. Croll patented the use of the oxides of iron and of other metallic oxides, in a dry-lime purifier; and he added to his invention a process for revivifying the metallic salt, after it had done its work in the purifier, by heating it in ovens to expel the sulphur, after which it became again fit for use. Mr. Croll's patent includes also a means of removing ammonia from the gas by chloride and sulphate of manganese and muriate of iron, and sulphuric and muriatic acids; the process for removing the ammonia having preceded the use of the oxide of iron. The principal objection to the use of Mr. Croll's process was the trouble and cost of roasting the spent metallic salt, to revive it, and that operation, as was afterwards discovered by Mr. Laming and by Mr. F. J. Evans, is unnecessary, for the revivification takes place, though in a longer time, by mere exposure to the atmosphere.

In the first patent obtained by Mr. Laming, dated November, 1847, no mention was made of the revivification of the oxide of iron, and its chief variation from the patent of Mr. Croll consisted in conducting the processes of separating the ammonia and the sulphuretted hydrogen in the same vessels. Instead of using muriate of manganese to arrest the ammonia, as claimed by Mr. Croll, Mr. Laming employed muriate of lime, and instead of using that substance in a separate purifier, he mixed it with the oxide of iron, so that it could be used in the same vessel, and he expressly disclaimed the use of that oxide by itself. The plan adopted by Mr. Laming, as described in his specification, was to cause a strong solution of the muriate of lime (chloride of calcium) to be absorbed into dry sawdust, in such propertion as to make the mass assume the form of a wet and granulated powder, and when mixed with a due proportion of "carbonate" or oxide of iron, he exposed the combined materials to the action of the foul gas in a dry-lime purifier.

So far, nothing practically useful had been invented, for though the process of revivification described by Mr. Croll may be regarded as the precursor of the subsequent plan of reviving the metallic salt, the cost of that process, when properly conducted, precluded all hope of its adoption in practice. To roast oxide of iron would be more costly than it is to reburn gas-lime, and that is well known to be unprofitable.

The first claim to the process of the revival of the oxide of iron by exposure to the air was made by Mr. Laming, in a patent taken out in France on the 22d of February, 1849, in which it was stated: "In the fifth part of this invention I extract from the gas all the hydrosulphuric acid which it contains by means of the hydrated peroxide of iron; and the sixth part consists in renewing the hydrated peroxide of iron after its conversion into sulphuret of iron, by exposing it to the action of atmospheric air." Mr. Laming, however, does not seem to have carried out this invention in England, and the process of natural revivification of the oxide of iron was discovered and first applied in this country by Mr. F. J. Evans, at the Westminster Gas-works, in the summer of the same year. The discovery in his case was the result of chance, aided by close observation, and it was put into operation by him in August, 1849, before any patent for it had been obtained in this country. Mr. Evans used chloride of calcium with the hydrated peroxide of iron, but the revivifying action could only take effect on the metallic sulphuret, and that constitutes the real advantage of the process.

The patent by which Mr. F. C. Hills claimed an improved process of purifying gas by the hydrated oxide of iron, and which gave rise to much costly litigation, was dated November 24th, 1849—at least three months after the natural revivification of the sulphuret of iron had been discovered and made known in England by Mr. Evans. The title of Mr. Hill's patent gave no indication of the material parts which he claimed as his invention, for under the old patent law a latitude and vagueness in the title of a patent were allowed which would now be fatal to such a monopoly. Mr. Hill's patent was entitled "An improved mode of compressing peat for making fuel or gas, and of manufacturing gas and of obtaining certain substances applicable to purifying the same." Under that patent, which underwent several alterations, by way of disclaimers, Mr. Hills claimed as his improvement "depriving coal-gas of its sulphuretted hydrogen, cyanogen, and ammonia, by passing it through the subsulphates of iron, oxychloride, or the hydrated and precipitated oxides of iron, either alone or combined with sulphate of lime, sulphate or muriate of magnesia, baryta, strontia, soda, or potash, and mixed with saw-dust, breeze, or other absorbent matter which will allow the passage of the gas through it; and when the absorbing materials become inert they are revivified by passing a current of atmospheric air through them."

(To be continued.)

—Francis Carroll, of New Orleans says at the gas works in that city, there is a boiler which has been in use fourteen years and has never collected a particle of scale. The feed water is drawn from one of the gasometer tanks which are supplied from the Mississippi.

General Summary.

Steel Works.—Krupp, the steel king of Essen, in Prussia, has within the past forty years built up what is in effect a town by itself as his workshop. He employs 10,000 workmen—add to them their wives and children, and there is already a respectable population. Last year he turned out 62,500 tons of cast steel, at a valuation of $7,500,000, involving a daily consumption of one thousand tons of coal. Of guns alone he has delivered 3,500 altogether, valued at $5,250,000.

Levy's Fire Annihilator on Railways.—We learn from the San Francisco *Daily Times* that the Central Pacific Railroad Co. have purchased fifty of Levy's fire annihilators, which they intend to distribute along their entire line, placing one at each station, and providing every train leaving the depot with a machine, which will be in charge of the guard. Mr. Levy has been engaged in instructing the railroad employés as to the method of using them.

Proposed Railroad Across Nicaragua.—At the meeting of the British Scientific Association, in Dundee, in September, a paper was presented by Lieut. Oliver, of the Royal Engineers, on the Nicaragua Railroad and Capt. Pym's survey. This last named officer has made four explorations of Nicaragua, the last in 1865. He has obtained a grant from the Congress of the Republic—1,300,000 acres of mineral lands, besides extensive grants of other lands. The estimated cost of the road is $3,000,000. He says the country is perfectly level. He proposes to start from Monkey Point, north of Greytown, where a good harbor can be made by a short breakwater, then a line of railway to Lake Nicaragua, thence by steamers across the lake, and another line of rail to the Pacific, to the town of Realejo, where there is an excellent harbor. The distance between ocean and ocean would be accomplished in 23 hours. The railway would be 155 miles in length, and the estimated cost $3,000,000.

New Motive Power.—The Nevada *Gazette* of 6th November says: W. C. Stiles has obtained a patent for a new motive power, which he represents as a perpetual motion, but he does not call it that—in fact he has given it no name. It is claimed, however, to be a new motive power, which runs after being set in motion, has sufficient force to be useful in propelling machinery, and is at no expense except the bare machinery. A model of tho machine was put up and set in motion at Nevada, and examined by two or three persons, who pronounced it a success, and destined to do away with steam as a motive power. It is said the parties who saw it work furnished Stiles with money to go to Washington for a patent, and also authorized him to go to Europe, if he thought proper, to procure patents in that country. At Washington the model was put up and set in motion, and was examined by many mechanics and distinguished scientific men, who could give it no other name but perpetual motion.

Mineral Paint.—Mr. O. A. Olmstead, of Sonoma county, Cal., has discovered on his farm near Russian River, about ten miles from Bodega and twenty-six from Petaluma, several samples of mineral paint. He obtained a dozen or more different colors from this natural paint. It is found in immense quantities, and he has made numerous tests of it, as also have many of his neighbors. It is in the form of a soft rock which has to be ground to prepare it for use. Almost any shade of color except white may be obtained from the deposit. Good judges have pronounced it of superior quality, and it is Mr. Olmstead's intention to make arrangements for supplying the California market, as he can afford to sell it 30 or 40 per cent. below the present price of the imported article, and realize a handsome profit. If further trials shall confirm the impression of those who have used it, that it is fully equal, if not superior, to that from abroad, it will add another item to the long list of valuable mineral products of California, and result in the development of a new source of wealth.

Evolution of Gas from Coffee.—At a recent meeting of the French Academy of Sciences, the following information, useful to be known in the chemical world, was communicated by M. Babinet, with regard to the evolution of gas during the process of making coffee. If finely ground roasted coffee be steeped in cold water, gas will be involved to an extent about equal in volume to the quantity of coffee used; and this action will take place very rapidly, insomuch that if a bottle be half filled with coffee duly ground, and the remaining space then filled with water until the cork is reached, an explosion will ensue, sufficient in force to expel the cork, or even break the bottle.

Formation and Deposit of Coal and Petroleum.

A NEW THEORY.

The following article was sent to us by the author for publication some time ago, accompanied with a letter stating that the the theory is offered in order to have "scientific investigation, and if erroneous to have science disprove it:"

When we look over the theories of the formation of coal and petroleum, and find that science dispels them one after another, we are obliged to find new ones; and as new developments are made, new theories may be presented that will accord with the truths of science, and harmonize with the laws of nature. Without attacking the old theories, and leaving them out of the question, let us start a new theory of formation and deposit, and draw to our aid some of the deductions that may be taken from the geography, geology, and analysis of coal and petroleum, as they are developed by nature and by art. We learn by analysis that coal may be changed into gas; may we not with propriety determine the synthetic formation and see how the laws of nature harmonize in the formation of this very important part of our terrestial sphere?

We will begin with gas, and see if we cannot follow it through the labyrinths of nature up to the time that the miner takes it from its rocky bed, to be used for the advancement of science and for the wealth and comfort of our race. As all and every thing is something, and man cannot conceive the idea of something being made from nothing, then we may go as far back to begin a theory of formation as we can go by analysis; and to go beyond this point involves us in inexplicable theories, suppositions, and uncertainties that we cannot understand; and then we call on infinite wisdom for assistance, and if we do not get it we leave the matter as a wondrous mystery.

Then gas is the first condition that the component parts of coal and petroleum are discoverable by our senses, and from gas all the great deposits have been formed; then the cause of their being thus deposited is the next point to which we may direct our attention.

As all the deposits and formations of the crust of the earth bear evidence that the various substances were once in a fluid or gaseous condition, and science teaches that all ponderable substances contract while cooling; then we find the reason why substances that were once within the crust were ejected to, or near the surface; thus we learn how nature performs this operation, and we have the law exemplified in the action of the volcano that deposits its lava upon the surface, and the earthquake that is produced by the same cause, and its effect is to make deposits within porous substances, such as sandstone, and sometimes by displacing one substance and depositing another.

As that which is the least fusible is the first to become solid, we may determine which part was first solidified into the crust or surface that surrounds our sphere; and these substances by continuous cooling and contracting have become too small to contain the matter within them; they then burst open and the matter within escapes to the surface, until an equilibrium is obtained, which is partly done by reheating and principally by the compressed matter escaping to the surface. Hence we may conclude that a large amount of matter that has escaped through the first solid covering that was formed and its temperature reduced so that carbonaceous substances could be cooled to fluid or solid, so that it would not all escape to the atmosphere; then was the time for the deposits of carbon to begin, and at any time posterior to this. These deposits may be made either on the surface or within the crust where a suitable place has been formed. As coal, petroleum or gas has been found in all kinds of formation, from the old red sandstone to the upper formations, we must look for some cause to place them there other than their gravity or any agency that could be applied after they have been deposited on or near the surface of the earth.

Then we will inquire for other causes that will perform those difficult or apparently difficult operations, and see if we cannot discover the law that has placed them, and at the same time discover the law of creation and separation of one substance from another. When we carefully observe the laws of cause and effect, and carefully study science in the laboratory of nature, there will be unfolded to us that which was once a mystery but now appears as the harmony and symmetry of immutable laws. When the crust of the earth was too small to contain the gas within it, the crust could not be enlarged; then to restore equilibrium the gas is compelled to escape, and to escape a passage must be made for it, and while escaping, all cavities or receptacles within its reach are filled, and every substance within a cavity will be surrounded with gas: and as the gas approaches the surface it becomes cooled and condensed into a liquid state, so that it may be retained within cavities or porous substances, where it may remain after the necessary amount of gas has escaped, and there exist, filling cavities or encasing substances, until it may be disturbed by another eruption or by the miner's pick or drill.

The eruptions by gas have been very numerous and their effects various; in some cases the gas has escaped to the surface, bringing with it all that it can melt in its passage, and by escaping to the atmosphere is consumed and no carbonaceous deposit left upon the surface or within the crust; at other times it becomes so much cooled and condensed before it reaches the surface that the impelling force will not be sufficient to break the outer surface, then it is deposited within the substances composing the crust. Sometimes it is deposited in one and sometimes in another; hence it may be found in all conditions from gas to fluid and from fluid to solid, and the solids are variable according to the time and condition of the deposit. When the gas is impeded in its progress near the surface by a layer of impervious rock (such as conglomerate) there may be force enough to raise the rock and make a large deposit underneath it, and according to the area of the rock and amount of the eruption will be the deposit; and when the gas is thus deposited and near the earth's surface it will become cool and liquid, and finally by the superincumbent weight upon it, it becomes solid, and if any portion of the gas cannot become liquid and solid, time will allow it to escape through the material that surrounds the edge of the carbonaceous mass, and when the escape of gas is at the edge the deposit of coal will be thinner at the edge than in the middle; which is the case with all coal deposits that are covered with conglomerate or its equivalent.

When an eruption extends to the surface because there are not porous rock or cavities to contain the mass, the gas may, on approaching the atmosphere, be cooled to a liquid mass and be deposited upon the surface of the earth, where, after being cooled, it becomes more and more solid until it has the consistency of asphaltum; and when it is deposited near the surface and has changed from the gas condition, the material overlying it may be broken by the action of water until valleys or channels are formed through the deposit; then the gas remaining and the liquid portion may escape at the edges, which easily will allow the material above to close down and finally stop the escape; and while this fluid is thus escaping adventurers may find oil springs at the bottom of the valleys, that may excite them much, and if they do not consult scientific laws they may in their search for the fountain bore down into the earth, and the farther they bore the farther they get from their object. When deposits have thus been disturbed or broken the edges of the parts will be found very thin and increase in thickness towards the centre of the deposit. Thus all the coal and petroleum deposits are made and the various ages of the different deposits will explain the difference of the carbons that now exist in like substances, and together with the various kinds and places of deposit the whole difference may be determined and a solution found for all problems in the whole carbonaceous field.

When an eruption reaches the porous sandrock the rock is filled with gas or oil, and if no escape is made to the surface, the gas and oil may be highly compressed within the rock, and when a deposit is thus made it will remain longer in a fluid state, because the sandstone prevents the superincumbent weight acting upon it to cause it to harden into coal; and as these sandstones are usually a concave shaped deposit and surrounded by some kind of shale, there is no place of escape for this gas after an equilibrium is obtained and the eruption has ceased; thus the gas and petroleum have been deposited, and thus will they remain until the rock is tapped by the oil man's drill or disturbed by volcanic agencies.

CHARLES KETCHUM.

PENN YAN, N. Y., July 12, 1867.

Economy in Coke Making—Utilization of the Waste Gases.

[From the Scientific American.]

The only use that has heretofore been made of the gases driven off from bituminous coal during the process of coking has been to supply the heat necessary to make the coke. It will require but a glance to show that even with a coal with but a small proportion of gaseous matter in its composition, only a portion of its gas is really necessary to give the heat required to completely perform the operation of coking. The only attempt we are aware of that has been made to utilize all the gases driven off is by the process of Messrs. Carver & Co., of St. Entienne, in France, and they issued a small pamphlet which was given to visitors to the show of articles made from the gases driven off in coking exhibited by the *Société de Carbonization de la Loire* in the Paris Exhibition. This pamphlet was explanatory of their process, which is eminently successful. The gases from the coking coal are collected and drawn off through pipes, and cooled sufficiently to condense the tar, ammoniacal liquors, etc., contained in them; this purifies the gas, and it can be used for the same purposes as that made by the ordinary illuminating gas works. From the tar and liquids thus condensed, benzine, napthaline, sulphate of ammonia, a number of artificial manures, and a number of dye-stuffs are made; fabrics are also exhibited colored by these dyes. All these valuable products are, therefore, made from the gases which are permitted to be wasted by the usual process.

This company estimate that the profit they net from these substances is 2½ francs for each ton of coal coked. And to give an accurate estimate of the profits which accrue from this source it is only necessary to say that the coking ovens of the company, and which have been in operation for over nine years, use annually upward of 80,000 tons of coal in making coke. The pamphlet of Messrs. Carver & Co. contains a calculation that some three and a half million tons of coke are made annually in France; this amount corresponds to some four million tons of coal, a large portion of the volatile constituents of which are wasted and from this it is estimated that between twelve and thirteen million of francs are lost annually by the ordinary wasteful method. On the whole this is one of the most eminently successful examples of the application of practical chemistry to the arts that we have had the pleasure to record. It is a striking example of the benefits of the technical and industrial education which has been followed for many years in France, and indeed on the continent generally. We trust that before many years our practical men may enjoy equal advantages with respect to the application of theory to practical operations connected with the industrial arts not only as regards chemistry alone, but in all other branches. To effect this we must have schools of a decidedly practical nature, and text books devoid of speculation and so clearly composed that the facts that they are written to convey may be clear to the average understanding of those seeking instruction from them. A traveller in Europe with any mechanical perceptions cannot fail to be impressed with the importance of the continental system of technical instruction by the superb engineering and the wonderfully perfect metallurgic operations to be seen on every side.

Brevities.

—Fourteen New Orleans editors have been sick with yellow fever this season, but only one has died.

—A locomotive using crude oil for fuel drew a train of cars from Tidioute to Irvineton.

—The newspaper is a law for the indolent, a sermon for the thoughtless, a library for the poor.

—A "College of Arts as applied to Industry" is to be established in Paris.

—The Pacific Railroad Company have, it is said, given $2,000,000 for the Elysian Fields, whereon they intend to construct an extensive depot.

—The English language has 60,000 words—in the dictionaries. Good talkers and writers use but 5,000 in all, and a foreigner can travel on 500.

—A despondent editor remarks that if the country grows much worse he shall publish notices of birth under the head of "disasters."

—An oil-bearing stratum, 300 miles square, yielding petroleum of a superior quality, has been discovered not far from Pekin, China.

—The population of San Francisco is now one hundred and thirty thousand, an increase of seventy-four thousand in seven years.

—It requires two hours to wind the clock on the Parliament House in London. The dials are twenty-two feet in diameter, and the bell weighs 15 tons.

—The best toast of the season was, we think, given by a printer, viz: "Woman—the fairest work in all creation. The edition is large, and no man should be without a copy."

Correspondence.

Proposed Convention of Gas Men.

BURLINGTON, IOWA, Nov. 25, 1867.

EDITORS AMERICAN GAS-LIGHT JOURNAL:

The communication in the Journal of November 16th signed "R," suggesting a convention of *gas men*, to be held in April or May next, is so well timed, so comprehensive, and so much in harmony with my own views entertained for years and expressed occasionally in intercourse with other members of the profession, that I thought, with your permission, I would heartily second the motion.

It is strange, in this age of organization and combination, that an interest so vast, engaging the best energies of some of the most intelligent scientific men of the country (as well as some not so much so), should have been permitted to suffer so long for want of a thorough, full, and free interchange of views in relation to the best methods of attaining results in this interesting field of investigation.

With the sole object of stimulating this movement I write this hurried note, and say by all means let us have the convention, and as Cincinnati has been named, let us agree at once to meet there, say early in May next.

Truly yours,

PLODDER.

OFFICE LOUISVILLE GAS COMPANY.
LOUISVILLE, KY., Nov. 26, 1867.

MESSRS. EDITORS:

I think very favorably of a suggestion made by a correspondent in your paper of the 16th of November, in relation to holding a convention of gas engineers and others interested in the manufacture of gas. The middle of April or the first of May would be a very good time, and Cincinnati a convenient central point for holding the convention. It is to be hoped that something may be done to bring about the accomplishment of this matter.

The manufacture of gas in this country has become so extended, that much mutual benefit would arise from the interchange of views and opinions among those interested in the subject, and the result of their deliberations would be of great service to the country at large.

Hoping that there will be many agreeing with me on this subject, I am,

Yours respectfully,
J. LAWRENCE SMITH,
President and Engineer.

FITCHBURG GAS COMPANY.
Superintendent's Office.
Fitchburg, Mass., Nov. 22, 1867.

Messrs. Bryant, Callender & Co.,
22 Pine st., New York.

Gentlemen: I like the suggestion of your correspondent "R", and would be there.

I would like the name of your correspondent in the Journal of September 16, signed "Out West." He has obtained results which I should like to approach to.

Respectfully,
H. F. COGGSHAW, Sup't.

Commendatory.

TO THE PUBLISHERS GAS-LIGHT JOURNAL:

Gentlemen; I enclose a $3 money order to pay one year's subscription to the Journal. As it was sent us without our subscribing for it, I do not know from what point the year begins, of which please inform me.

When this Journal first started we took it and were profited by it as we thought, for the first year or two, until, as we thought, it was going after false gods—getting the prevailing epidemic of the time, to wit, "oil on the brain"—we discontinued it; but as it seems of late to be returning to its first love, we cheerfully renew the intimacy and hope to learn things from its columns to aid us in the benevolent work of enlightening mankind.

Very truly yours,
N. SPENCER.

"Stopping Up of Service Pipes."

OFFICE KNOXVILLE GAS-LIGHT CO.,
Knoxville, Tenn., Dec. 7, 1867.

EDITORS AMERICAN GAS-LIGHT JOURNAL:

Gentlemen: In answer to Mr. Rankin's inquiries, contained in your last issue, I would suggest to him the use of naphtha and steam. I have often used it successfully in cleansing the mains from naphthaline. First pour into the pipe a little naphtha, then admit a jet of steam. A small portable copper boiler is generally used for this purpose.

I believe that working high heats has a tendency to create naphthaline in the mains.

Respectfully,
JAS. SOMERVILLE, Sup't.

A Spicy Letter.

The following *jeu de esprit* was evidently written by some one who *designed* to *draw* a smile. Perhaps if he succeeds to draw down his way the "young man" who "can draw," it may turn out he has *drawn* a *prize*. If not, the *draw*-ee may employ the *draw*-er after finishing the coal contract, etc., to *draw* teeth, or if theatrically inclined, to *draw* full houses.

We are sorry to state, however, that we are informed that the young man who "can *draw*," Munchausen-like, *drew* the "long bow" here too strongly for the good of those who befriended him, and after *drawing* what he could from the pockets of his victims, *drew* himself off to a new field of operations, and making a bad *draw*ing there, incontinently with*drew* from the country for the country's good. *Semper timidum scelus.*

NEWCASTLE, DEL., December 9th, 1867.

To the Young Man lately Assistant Manager in a Liverpool Gas Works:

Dear Sir: I have noticed your advertisement in the AMERICAN GAS-LIGHT JOURNAL for many weeks past, and after mature deliberation have concluded that you would be a suitable person to take charge of the gas works in this town. I am a heavy stockholder of the works, and have often called the attention of the directors to the advantage of a change in the principal manager. At the last meeting of the "Board" I produced your advertisement. They were forcibly struck with it, particularly that portion of it which read "and can draw." After considerable debate upon it, they empowered me to negotiate with you on the subject.

What they principally require in the superintendent is the knowledge of being able to draw. The gas works are situated about half a mile from the railroad; all the coal they use is brought by it, and if you could "draw" it from the depot to the works, you would accomplish an object long desired by them. They likewise consider it important that the superintendent be able to "draw" the money from delinquent consumers, and be conscientious enough to put it in the drawer after he has "drawn" it. The present manager is tolerably well posted in his duties, with the exception that he cannot "draw." Nevertheless it has been hinted that he was very proficient in that line. They did not credit the statement, until a few weeks ago, when they caused me to keep my eye on him. I did so, and one evening was rewarded by seeing him attempt to "draw" a cork from a very dark looking bottle, and I must say (in confidence) he succeeded admirably. That is about all the drawing he can do, except that once in each month he is promptly on hand to "draw" his salary. If you think you would like to live here (there is a pillory and whipping post in town) say so, and I will look out a boarding-house for you.

Any communication you may be pleased to honor me with will safely reach me, as I am well known about here. Should you desire any further information regarding the price of board, or any other matters appertaining to the gas business, you have my consent to write to any of the directors, who I have no doubt will with pleasure satisfy your mind on any doubtful question.

P. S.—I am sorry to inform you that you would miss your national beverage here (half and half) as the only recognized drink in this place is whiskey and water, in the proportion of a half tumbler of the former to about three drops of the latter. Good bye: call and see me next time you are down this way.

Respectfully yours,
A STOCKHOLDER ON THE HEAVY SIDE.

Scale in Gas Mains.

At a recent meeting of the Literary and Philoshphical Society, Mr. P. Hart presented the following "Notes on the Occurrence of Sulphocyanide of Ammonia in Gas Mains:" "A few months ago, while some gas mains in the street were being replaced, I was induced to examine the scale which forms in the interior, being under the impression that probably I should find sulphide of iron, the result of long-continued action of sulphide of hydrogen on the iron. On placing a portion of this scale in pure hydrochloric acid I perceived an intense redening, much more than would be accounted for by the simple solution of peroxyd of iron, and being aware of the fact of sulphocyanogen being one of the products of the distillation of coal, I at once suspected its presence. A portion of these scales were boiled in water. The clear filtrate from this gave off much ammonia on the addition of alkali, and on the addition of a dilute solution of perchloride of iron, it gave at once the intense coloring so characteristic of the sulphocyanides. The insoluble portion remaining on the filter was then boiled in dilute caustic soda; the filtrate from this made acid, and a solution of ferric oxyd again added, this time with the production of a blue precipitate indicative of a ferrocyanide. This must have existed as ferrocyanide of iron, which, on boiling with the alkali, became oxyd of iron and ferrocyanide of sodium. There appears to me something curious in the fact of these bodies being carried such a distance (in this case fully a mile from the gas-works) by the gaseous current. I should think the ferrocyanide is result of a reaction between the sulphocyanogen and the metallic or oxyd of iron. The amount of these bodies must, I think, be far too small to have any bad effect on the health of the gas consumers."—*Mechanics Magazine.*

Corrosion of Boilers.

An interesting paper "On the Corrosion of Locomotive Boilers, and the Means of Prevention," has been published in the proceedings of the Institution of Mechanical Engineers, England. The subject has excited attention from the frequency of boilers having exploded in the kingdom within a single year, involving a great loss of life and property. It is stated that the wear of a locomotive boiler is from five to eight years, during which it will have evaporated ten million gallons of water, is equivalent to thirty years' wear of a stationary boiler. Mr. Kirtly, the author of the paper referred to, points out the chemical and mechanical agencies by which the waste of the boiler plates is occasioned, and also the cause of weakness, in the change of temperature produced by the supply of cold water to the boiler, which, however, can be remedied by care in feeding. In the opinion of Mr. Kirtly, all these sources of weakness and of danger mey be avoided by an improved mode of constructing boilers. It is pointed out that since the tires of wheels have been manufactured one single piece, without joint or weld, the breaking of tires has become less frequent than before. Therefore, it is urged that if a boiler is made of one great hoop, instead of a number of plates, it will be much less liable to explosion than one made in the ordinary way. It is stated that for six years past nineteen of these welded boilers have been in constant use on the Midland Railway, in England, and with such satisfactory results that the same mode of construction has been permanently adopted for all the engines on the line. Each of the boilers has traveled one hundred and seventy-five thousand miles, and is in good condition. The cost is said to be somewhat higher than at present, but this is warranted by the great saving in after repairs and the diminution of risk.—*N. Y. Mer. Journal.*

A Gentle Word is Never Lost.

A gentle word is never lost,
Oh, never then refuse one;
It cheers the heart when sorrow-tossed,
And lulls the cares that bruise one;
It scatters sunshine o'er our way
And turns our thorns to roses;
It changes weary night to day,
And hope and love discloses.

A gentle word is never lost—
Thy fallen brother needs it;
How easy said! how small the cost,
With peace and comfort speeds it!
Then drive the shadow from thy cheek,
A smile can well replace it;
Our voice is music, when we speak
With gentle words to grace it.

MISCELLANY.

Six Feet from Death.

It may appear absurd for any one to assert that the exact distance from life to death has ever been measured or, in fact, to prove that there is any space between life and death; yet we hope to prove that the assertion is not entirely wrong, by presenting to our readers a case which will illustrate to them how, when, and where this task has been accomplished.

It was in the far-west, upon one of the numerous isolated mountains which are scattered along a short distance from the principal range of mountains in the west. It was a warm, pleasant day that found Joe White upon the aforesaid mountain, rifle in hand, and gazing upon the beautiful scene below. It was not the first time he had chosen this spot to admire the beauties of nature, but, on the contrary, it was his favorite spot. And well chosen it was, for the beholder could not but admire the sublime grandeur and universal beauty of the surrounding scene.

At his feet lay an extensive prairie, stretching away upon every side as far as the eye could see. The dark, deep waters of a swift running river could be seen in the distance, hurrying onward in a never changing course, with a wild tumult that was heard at a great distance. Now the swift running waters ran smoothly, but again, as it reached some large stone in its course, would rush madly against it, as if determined to force it from its position, but finding its efforts fruitless, would again hurry onward, calmly yet swiftly as before.

The mountain upon which he stood was of a peculiar shape. Rising up abruptly from the plain, it formed upon one side a high precipice, which overlooked a dark and deep valley, the bottom of which was composed of sharp, rugged rocks. Upon the other side, it sloped gradually to the plain in a striking contrast with the precipice, the top of the mountain being quite flat, yet in some places it sloped toward the precipice. The hunter was standing near one of the abrupt "slopes" that led to the face of the cliff, and, with satisfaction and pleasure, gazed upon the scene around him. His whole thought was absorbed in the natural beauties before him, and in his strange delight he half unconsciously descended a "slope," and stood within a few feet of the edge of the precipice, endeavoring to gain a view of the bottom of that dark valley that lay at the base of the cliff. Nearer and nearer he went, until his curiosity was satisfied, then he turned around to return to his former position.

As easy as he had found it to descend, he found it hard work to ascend the slope, and another moment revealed the unpleasant fact that he could not go any further. The mountain appeared to become suddenly slippery, and at every step he found himself slipping slow but painfully sure back toward the precipice. Every moment increased his danger, for he was rapidly becoming excited and flurried from his perilous position. A misstep or a stumble would send him rolling off into that dark, deep valley, upon the sharp, rough rocks, and his breath came fast as he pictured himself a mangled, bloody mass of flesh below.

Oh, for a helping hand in that moment of extreme peril. But no assistance seemed at hand, and the wind, gently stirring around, fanned his burning brow as if to mock him in his dangerous situation. The smiling beauties around lost their enchanting power. The bright, cheerful aspect around served to discourage him, for he could not look with anything but regret on such a delightful scene. He was gradually losing ground in his efforts to extricate himself from his perilous position. At times he gained a little, but perhaps the next step would be too hurried, and he would slide back a few inches.

He was, indeed, in an almost hopeless position, for at his back was the high precipice which he was gradually nearing, and should he fall over, certain death awaited him. At his front the "slope" lay which he was vainly endeavoring to ascend. He became heated under his severe bodily as well as mental excercise. Every moment he was becoming more frightened as he continued to revolve in his mind his first conclusion, that it was impossible to escape.

Under the nervous excitement he made an incautious step—stepping upon a small stone which jerked him to his feet, and he commenced sliding down the "slope" to his death.

As he fell he threw out his hands for support, and fortunately seized a small shrub, the only one to be seen upon the mountain. This, however, promised little of support, as the pebbles parted from its base, showing the strain upon it was too great. Every moment he felt a perceptible relaxation, and knew the plant was slowly being dragged from its position by the unnatural strain. His feet were already at the edge of the precipice, and he measured the time he had to live by the condition of the plant. He knew full well that his time would come should the plant give way, which it seemed impossible to hope against.

And thus he lay suspended between life and death, hope and despair. At his feet lay the precipice that would undoubtedly prove his death should he pass it, while at his head lay a place of perfect security. A slide of six feet, should the plant give way, would prove his death, and to all appearances it was gradually losing its hold upon the ground, and slowly nearing the hunter's death. Plan after plan was conceived by the hunter and as quickly thrown aside as some objection was raised against it, and minute following minute in quick succession as the chances of his escape seemed to be diminishing.

Minute after minute passed by, yet the hunter still remained in the same suspense. The plant appeared as strong as might be expected, but an occasional pebble rolling from its roots showed plainly enough that it was fast giving way. He could not refrain from picturing the certain result of the plant giving way. He knew that he would be hurled upon the rocks beneath, and his life in this world brought to a cruel end. His thoughts ran quickly upon past events. The smiling beauties of nature seemed unusually bright as he thought that this was his last time to gain a sight of them.

The terrible suspense arising from his critical situation was horrible, causing the perspiration to flow from his face in large drops. At times he thought of relinquishing his feeble hold upon life, and thus end the terrible suspense. But he could not bear to put this thought into execution.

The plant had gradually lost its hold upon the ground, but seemingly endeavored to cling to the soil, as if in reluctant response to the continued strain upon it. For a few minutes the plant remained stationary, and the hunter's hope revived. He would attempt to creep up the "slope" and thus save his life, for the plant promised a firmer support, as it seemed to get a tighter hold of the loose ground.

Eagerly he set about his task, but in this he failed, for in his eagerness he incautiously gave the plant a jerk which tore it from the ground, while he commenced slowly slipping backward. The nature of the ground, and the rough clothes he wore served in a measure to lessen his rate of speed toward the precipice. Yet he was slowly sliding backward to the precipice—to his death. The terrible agony following the realization of his position seemed intense. How could he look calmly upon the surrounding beauties without sighing for a stay among them. But work as he would, he could not stop himself from slowly slipping backward.

His feet at last projected over the precipice, and another moment would find him a bloody corpse; so thought the hunter, until a slight inequality of the ground stayed his progress. Again was he left in terrible suspense, for his feet, hanging, or rather projecting into empty space, had a queer feeling. Upon the edge of the precipice he lay, suffering a terrible suspense. The future seemed dark, and his prospects of escape very small. Again the time passed quickly, yet his position was unchanged; some exertion was needed to again start him onward to his death. Yet, as minute followed minute and his posit on remained unchanged, he concluded to run the risk of again trying to crawl up the "slope." Cautiously he made the first attempt, and gained a few inches, but the next moment he slid back to his former position. Again and again the attempt was made, until at last he had gained a few feet, but was as ever in a dangerous position, for the least motion set him sliding backward. And thus he lay flat upon the mountain, where a slide of only six feet would cause his death. The terrible suspense at last proved too much for him, and in a moment he made a mighty effort to gain the top of the mountain, with a resolve that it would prove his last struggle. He would save his life or lose it, but he would not endure such terrible suspense. He strained every muscle to accomplish his task, but the mountain was slippery, and the way was steep His chances of life or death were about equal. He threw all his strength into this movement, and although he slipped backward several times, he finally triumphed.

He was evidently thankful that he had escaped, and as he thought how near he had approached death, he could not again look upon the surrounding scene with that delightful appreciation which had characterized him before. A last look at these scene of his late adventure, and he disappeared from view.

The Frozen Well of Vermont.

The famous frozen well at Brandon, Vermont, which has attracted so much attention, is described by a recent visitor as being forty-one feet in depth and passing through a stratum of frozen gravel fifteen feet thick before reaching water. The frozen gravel was overlaid by a four-foot layer of stiff clay, and underlaid by two or three feet of gravel which was not frozen. It was dug in 1858 by Mr. Twombly, the owner, to supply his dwelling with water. In winter it freezes over generally at night, several inches in thickness, and they have to send a boy down in the morning to break it, and sometimes, in very cold winters, it freezes so hard as to be useless until spring. Last winter this was the case, and in the month of May a man had to be sent down into the well to break up the ice before water could be obtained. During the summer there is ice attached to the stones of the wall near the surface of the water, and sometimes small pieces are brought up in the bucket. Of course the water is cold at all times like ice water. The owner says the middle of the shaft is the coldest, and he complains of having caught the rheumatism by going down into it in hot weather. The extensive deposit of frozen gravel is the cause of the freezing of the water in the well; but the mystery is how did the frozen gravel get there? Was it formed during the glacial period? Wells were sunk at a distance of seventy feet on each side of this one to ascertain the cause of the phenomena. In one at twenty-nine feet, they found water of 46 deg. temperature, while that of the frozen well was 40 deg. In the others they found layers of frozen gravel and ice from two inches to a foot thick at a depth of 29 to 34 feet, at which point every thing was solid, and chunks of ice were picked up by the workmen, and the workmen stopped. The mystery, however, is still unexplained. —*Exchange.*

Useful Recipes.

To Test Air for Carbonic Acid.—Pass it through lime-water. The carbonic acid enters into combination with the lime to give the water a milky appearance, and precipitates in the form of carbonate of lime.

Preserving Polished Steel from Rust.—A correspondent says that nothing is equal to pure paraffine for preserving the polished surface of iron and steel from oxidation. The paraffine should be warmed, rubbed on, and then wiped off with a woolen rag. It will not change the color, whether bright or blue, and will protect the surface better than any varnish.

Glyconine.—A mixture of four ounces of the yolk of eggs, with five ounces of pure glycerine, forms a preparation for soothing the irritation resulting from burns. The compound forms a sort of varnish, protecting the surface of the skin from the action of the air, and can be easily washed off when desired.

Water-proof Packing Paper.—The following is a German recipe: Dissolve about 1 lb. 12 oz. of white soap in a quart of water; in another quart of water dissolve 1 lb. 13 oz., troy, of gum arabic and 5½ oz. of glue; mix the two solutions, warm them, and soak the paper in the liquid. Pass it between dry rollers, or simply hang it up to drip and dry, and then only at a gentle temperature.

Alloy for Hard Metals.—Twenty parts iron turnings or tin waste, eighty steel, four manganese, and four borax, make an alloy for hard tools and bells To increase the tenacity, the proportions may be varied and two or three parts wolfram may be added.

Water Cement.—A cement may be made with common lime that will harden under water. What is called poor lime has this peculiar property; but as this species of limestone rarely occurs, it is often an expensive article. The following is a good substitute, and may be used for water cisterns, aqueducts, etc: Mix 4 parts of gray clay, 6 of the black oxide of manganese, and 90 of goodlime stones reduced to fine powder, then calcine the whole to remove the carbonic acid. When this mixture has been well calcined and cooled it is to be worked into the consistence of a soft paste with 60 parts of washed sand. If a lump of this cement be thrown into water it will harden immediately.

Late Mining News.

[Compiled for the AMERICAN GAS-LIGHT JOURNAL.]

—Near Smartville, Nevada county, Cal., upwards of $1,000,000 of gold have been taken from one claim of 100 acres since March, 1864. It took nine years of incessant labor and an enormous amount of capital to open it. It has four sluices three rods wide and three feet deep, in which is distributed three tons of quicksilver to catch the gold. The water used in washing cost $25,000 per annum, and 125,000 pounds of gunpowder are annually expended in blasting.

—Good ore is being taken out of the Tarshish mine at several points. Some of the best pockets ever struck in the mine have recently been opened. Fine silver pans worth about $2,500 have been shipped from the Silver Creek Mill. The bullion was the product of thirty tons of Tarshish ore.

—Several Washoe experts who have visited the Mountain tunnel recently, give it as their opinion that they are near the ledge. The granite composing the face is now much of it bleached and full of sulphurets, supposed to be the result of infiltration from a body of ore at no great distance ahead.

—We hear of a strike of good ore in the lower tunnel of the I X L. The *Alpine Miner* says a chunk of gold weighing over 30 pounds was taken out of this rich vein.

—The tunnel alongside of the Merimack company is exhibiting good looking ore. Assay was made recently of a sample of ore taken out of it, which gave a return of $200.87 per ton, $18 of which was gold and the balance silver. The ore is also rich in copper, being what is known as Fahberg or gray copper ore.

—The North Star Mining Co. shipped from Grass Valley on the 4th Nov. $10,000, the result of a clean up after six days run.

—The New York Hill Mining Co. shipped $7,000 cleaned up af a run of the same length of time.

—The Klamath Copper Mining Co, have at last struck the ledge which, in the opinion of Mr. Tonkin, the superintendent, is marvelously rich. The tunnel is 50 feet in length and 220 feet in a perpendicular line from the surface.

—The Marysville *Appeal* says that George Sutler, of Yankee Hill (near Forbestown), picked up one day recently, a nugget of pure gold weighing three pounds.

—The Grass Valley *National*, of Nov. 4th, says that the quartz veins aae continuing to yield abundantly. Some $6,000 or $7,000 worth of specimens were taken from the Empire mine, at Ophir Hill, also another valuable lot from the Dromedary. The rock being crushed at the North Star, French lead, is among the richest in geld and sulphurets of any ever crushed in the State, while the Eureka still maintains a pre-eminence in the yield of gold.

—The product of the mines of Lander county for the quarter ending Sept. 30th, as reported on the books of the County Assessor was 2,091 tons, which yielded the sum of $390,570.84 in currency.

—Seven-twelfths (or 700 feet) of the Wheeler mine, situated in Pine Grove, Wilson District, Nevada, have been sold to Governor Blasdel and others for $10,500.

—The bullion shipped from Grass Valley, through Wells, Fargo & Co., for the ten days prior to October 31st, amounted to $92,000—principally the produce of the quartz mines. From Virginia City there were shipped through the same house 3,202 pounds of assayed bullion, valued at $66,659.86, and from Gold Hill 2,770 pounds, valued at $63,182.53.

PATENT CLAIMS.

Pertaining to Gas, Mining, Petroleum, Water, etc.

71,617.—GAS AND OTHER RETORTS.—James John Holden, and Sealy James Best, London, Eng.

We claim the employment of a chamber at the mouths of retorts so dispensed as to establish communication between two, three, or more retorts, such chamber having a door, by opening which access is afforded to such two, three, or more retorts at the same time substantially as described.

71,629.—BURNING FLUID.—Thomas Martin and J. G. Evans, Muscatine, Iowa.

We claim a burning fluid of the ingredients and combined in the proportions herein specified.

71,657.—APPARATUS FOR GENERATING OXYGEN GAS.—Benjamin R. Smithson, New York, assignor to himself and Samuel West, Boston, Mass.

I claim the within-described apparatus for generating oxygen gas, constructed and operating substantantially as set forth.

71,658.—SHOEMAKER'S LAMP.—John M. Sporer Phila., Pennsylvania.

I claim the combination and arrangement of the cylinder, B, trough, D, curved arms, E E', and the steady-rest, *b b'*, as shown and described.

71,665.—CARBURETTING APPARATUS.—William Thompson and J. E. Hall, Cleveland, Ohio.

We claim, 1. The agitator, J, constructed with an annular chamber, L, wings, M and N, and tubular arms, O, in the manner and for the purpose as set forth.

2. Perforated lining, B, top, Q, spouts or sleeves, C, and cotton D, or its equivalent, as arranged, in combination with the float E' and agitator, J, in the manner and for the purpose substantially as described.

3. The float, E, agitator, J, constructed as described in combination with a carburetter, in the manner and for the purpose substantially as described.

4. The herein-described apparatus, provided with a float and a revolving agitator, constructed as described, whereby the carburetting-fluid is agitated, for the purpose of largely increasing its evaporating or elimination, substantially as and for the purpose set forth.

71,687.—CASTING METAL PIPE.—Benjamin S. Benson, Baltimore, Md.

I claim the anchor or stay above described, consisting of the wire-hoop *a*, the doubled plates, *e e*, and the bolts, *f f*, when the parts are constructed and arranged substantially in the manner shown, and for the purpose specified.

71,757.—DRY GAS-REGULATOR.—John B. Hoffman, Philadelphia, Pa.

I claim 1. A bellows-like receiver, H, applied to a gas-regulator, and connected to the valve of the latter substantially as described so that as the pressure of the gas varies, the receiver will expand or contract, and the opening for the passage of the gas will be increased or diminished in size.

2. The chamber, I, and its detachable cap, *j*, arranged on the top of the regulator in respect to the weights, *x*, as and for the purpose set forth.

B. S BENSON,

MANUFACTURER OF

CAST IRON PIPES AND FITTINGS

FOR

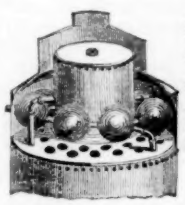
GAS AND WATER MAINS.

All sizes from 3 to 30 inch cast vertically in 12½ feet lengths.

Office and Factory 52 East Monument street.

BALTIMORE MD. [184

DAVIS' PATENT SAFETY Steam Superheating Boiler,



Requires only 25 lbs. of coal per day to the horse-power. Are made of the VERY BEST IRON, double lapped and double riveted.

Being upright, occupy little space, and are easily cleaned.

Without additional fuel, the Superheater increases the working capacity of the steam 25 per cent., which has been fully demonstrated by the many now in use. (See illustrated circulars).

Address the

DUPLEX STEAM BOILER MF'G COMP'NY,

Long Island City, N. Y.

STEAM, GAS

AND

WATER PIPES,

BOILER FLUES,

And all kinds of Brass and Iron Fittings, Tools, &c., for Steam and Gas Fitter's use.

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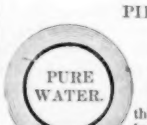
PATENT LEAD-INCASED TIN PIPE COSTS LESS THAN LEAD PIPE AND IS MUCH STRONGER.



INDORSED BY PHYSICIANS AND WATER COMMISSIONERS EVERYWHERE.

Recent improvements enable us to supply this pipe at a less price per foot than common lead pipe. To furnish the cost we should know the head or pressure of water and bore of pipe.

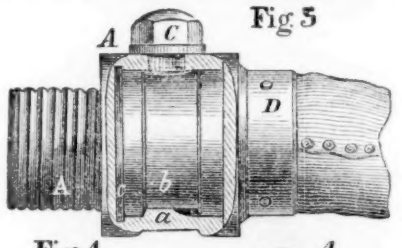
Pamphlets sent free. Address the

COLWELLS, SHAW & WILLARD M'FG CO.,

184) Foot of West Twenty-seventh st., New York.

GAYLORD'S PATENT COUPLINGS,

Fig 3



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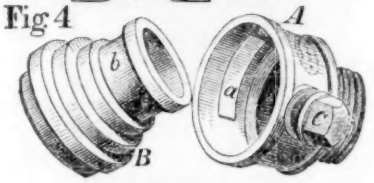

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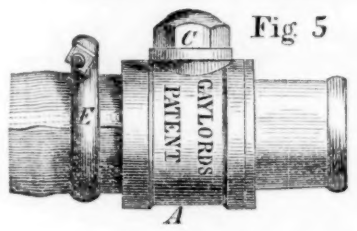

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I offer special inducements to parties wishing to purchase, my Pipe is Smooth, regular in weights, and cast vertically.

N. B.—Pipe from 3-inch and upwards, cast in 12-ft. lengths.

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From 25 to 1,000 horse-power, built in the best manner and at the shortest notice by the

South Brooklyn Steam Engine and Boiler Works,

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NEW SYSTEM OF
VENTILATION.
—BY—
E RY A. GO GE.

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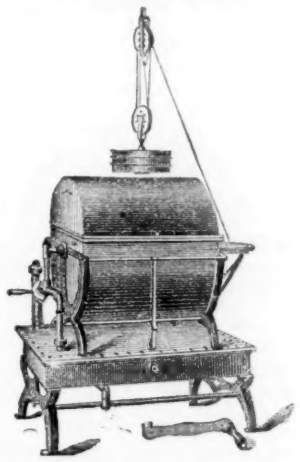
O. P. DRAKE & CO.'S
SOLAR GAS MACHINES.
For lighting Private Dwellings, Churches, Hotels, and Factories in any locality and independent of any Gas Company.



We manufacture eight sizes of the SOLAR GAS MACHINE, ranging from ten to five-hundred light capacity. Every machine is put in operation and fully tested before it is sent off, and is guaranteed to give perfect satisfaction. This new apparatus is the result of 15 years of experience in this special line of manufacture, and we feel warranted in asserting that our machine excels all others of a similar kind in the market. It is much simpler and more efficient than any former manufacture, and is constructed with special reference to safety and durability. There is no possibility of an explosion under any circumstances whatever, nor is the gas tank likely to leak or give out, or any part of the machine to get out of order, if reasonable care is taken of it. From five to fifteen minutes' attention is all that is required to keep any size of machine in perfect working order to supply all the burner-jets in a dwelling or factory.

Testimonials.

SOUTHBORO', March 20, 1867.

MESSRS. O. P. DRAKE & Co., BOSTON:

Gentlemen: In answer to your inquiry, I will say that I had your Gas Machine in use about nine months, manufacturing gas for lighting my store. It gives me but very little trouble. The light is good, clear, and at all times reliable. Its cost is less than half the cost of street gas. As regards safety, I think it very much safer than Kerosene lights.

Yours respectfully,
WM. C. BARNES.

BOSTON, Aug. 22, 1867.

MESSRS. O. P. DRAKE & Co., 8 Bedford-st., Boston:

Gentlemen: I purchased of you, Nov. 18, 1865, one of your Solar Gas Machines, for my house at Auburndale; and from that time until the present, I have enjoyed uninterrupted success with it. The light is uniform, clear and steady, and the best I have ever seen. I have never experienced trouble of any nature from the machine, and consider it invaluable. As to its safety as compared with any other illuminator, I consider it far superior, and have discarded everything else in the shape of oil, fluid, kerosene, etc. Hoping your invention may prove remunerative, I remain,

Yours respectfully
W. E. PLUMMER,
53 Merchants' Exchange.

LAKE FOREST, ILL., Aug. 30, 1867.

CHAS. MATTHEWS, ESQ., Agt of Drake's Solar Gas Mach., Chicago:

Dear Sir: Your letter was received, asking how I liked the working of the Solar Gas Machine put up by you for me. I would say that I have had the machine in constant use for the last 6 months, and am well pleased with it. The light is clear and steady, and the whole apparatus works to my entire satisfaction.

Yours,
WM. S. JOHNSTON, JR.

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We keep on hand range in size from No. 1 to No. 4, and occupy a space for No. 1, 2 x 3 feet, 2½ feet high up to 2½ x 5 feet, 4½ feet high for No. 4; weight of machines from 350 to 1,000 lbs. The No. 1 will supply 5 Argand or 10 bat's-wing burners 6 hours, and No. 4 will supply 50 Argand or 100 bat's-wing burners 6 hours.

Larger sizes, capable to supply several hundred lights, manufactured to order. Cast and wrought iron gasoline tanks furnished of any capacity. The trade supplied on reasonable terms.

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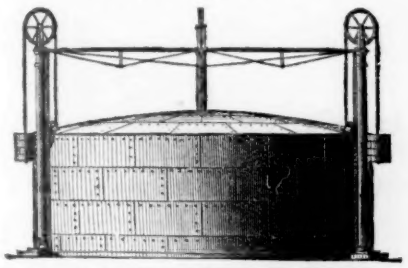

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Our superior facilities for doing this class of work encourages us to solicit Gas Companies and others to give us their orders.

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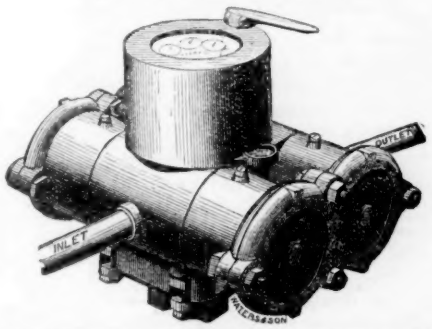

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This Meter is also used for the measurement of Oil —it combines
ACCURACY, SIMPLICITY, and REMARKABLE DURABILITY with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

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61 Beekman steet, N. Y.

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PATENT GAS HEATING AND COOKING STOVES, RANGES, &c.
SCIENTIFIC GAS HEATING APPLIANCES,
For every known trade or profession.
PATENT PETROLEUM OR AEROVAPOR STOVES. PATENT KEROSENE OIL STOVES. PATENT PORTABLE VAPOR BATH APPARATUS.

Gas Stoves made by us are constructed under the immediate supervision of A. L. BOGART, Esq., Analytical Chemist and Gas Engineer. They contain recent improvements of a scientific character—by means of which a PERFECT COMBUSTION is obtained, and the Caloric produced, rendered CHEMICALLY PURE. Too much cannot be said against the use of Gas Stoves for heating apartments—when the products of combustion (Carbonic and Sulphurous Acids are emitted without purification into the atmosphere. Your Physicians will inform you, that this is a subject of vital importance, and worthy of your closest scrutiny—before purchasing. The public are invited to examine into the merits of these Inventions. ☞

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AND
AMERICAN GAS-LIGHT JOURNAL,

Published on the 2d and 16th of Each Month

At No. 22 Pine Street, New York.

BRYANT, CALLENDER & CO.,

EDITORS AND PROPRIETORS.

MONDAY, DECEMBER 16, 1867.

WISHING TO MAKE this Journal an organ of intelligent discussion to those of our readers who may wish to gain or give information on the subjects to which its columns are devoted, the publishers solicit letters from all among them who make the study of those subjects a pleasure, or a profession.

SUBSCRIBERS would confer a favor upon us by remitting CHECKS or POST OFFICE MONEY ORDERS, as we are frequent losers where money is enclosed in letters.

☞ NEWS AGENCY.—The American News Company, 119 and 121 Nassau street, New York, are agents for this Journal. Newsdealers will please send orders to them.

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Answers To Correspondents.

N. O., of Mo.—If you see that your gas is thoroughly washed, condensed and purified, you will have no trouble with naphthaline in the mains and service pipes

S. E. P., of Ill.—Sponges belong to the lowest class of animals, and may be said to form the first link in the great chain of life which culminates in man. The finest sponges are obtained from the islands of the Mediterranean; the coarser descriptions from the Bahama Banks and the coast of Florida.

L. A. B., of Pa.—The most simple method to perforate glass is to use a very hard steel drill running swiftly, with plenty of water dripping upon it. When nearly through if a large drill is used, replace it with a small pointed rimmer, and do not let it stick, or in disengaging it the glass will be fractured.

S. A., of Pa.—Gas obtained from Cannel coal is much richer in olefiant gas (the principal agent of illumination) than gas obtained from ordinary bituminous coal, like that at Pittsburgh, Pa.

B. A. G., of Ohio.—Native bituminous coals of the best quality contains about 80 per cent. of carbon, and one pound requires 265 cubic feet of air for its combustion. Anthracite coal contains about 92 per cent. of carbon, and requires about 282 cubic feet of air for the perfect combustion of one pound. Only the oxygen in the atmospheric air combines with the carbon of coal during combustion; the nitrogen is inert. Much of the heat of a furnace is dissipated in heating the nitrogen of the air. With oxygen alone the heat will be infinitely more intense.

—Cato the elder said that wise men learned more from fools that fools from wise men.

TO OUR READERS.

This number closes the last act of our editorial drama for the year of our Lord 1867. We take a retrospective glance of our editorial labor during the past year with mingled feelings of happiness and regret—happiness in the remembrance of the generous words and smiles of encouragement and praise we have received from time to time, for our poor efforts to benefit and please our patrons, and regret that we were not able to do more.

The chimes of the New Year will open a new act, when we hope to earn the continued commendation and favor of our patrons; and we feel assured this we shall do, if any effort or expense of ours can avail, and Hope whispers in our ear a promise that we can.

Among the various additions and improvements we shall introduce in the ensuing year, will be one especially to the benefit of the gas fraternity. It will be a series of articles on the "Practical Management of Gas Works," by one of the most scientific and fluent writers, and one of the first Gas Engineers in this country. Adieu.

FACTS FOR THE PEOPLE ABOUT GAS.

Through want of knowledge of some simple facts connected with the management of gas much dissatisfaction, annoyance and useless expense may, and but too often does obtain; unfortunately, these evils are frequently aggravated because gas-fitters, to whom the consumer looks for aid, is often unacquainted with the various contingencies which occur in the introduction and burning of gas.

It is a common occurrence for consumers to complain of the excessive cost and deficiency of light. To the inaccuracy of the meter they generally attribute the first, and to the poor quality of gas the latter condition is usually charged; when, in reality, the fault will generally be found to rest with the consumers themselves, through their own ignorance and mismanagement.

Whenever light is obtained from gas at a greater cost than necessary, it is just as much a loss as to permit any other valuable commodity to run to waste. And a proper knowledge of the conditions that cause unnecessary loss, will place in our hands the means requisite to avoid and prevent it.

BURNERS.

There is no part connected with the consumption of gas, whereby the best results are obtained in the quality of light and economy of gas, of more importance than the burners.

It would be difficult to convince the majority of gas consumers, who have not given the subject attention, how remarkably the light derived from gas is reduced by improperly constructed burners; or where the pressure or the flames are unsuitably adjusted. Owing to these circumstances, the amount of gas consumed is disproportionate to the light obtained, and the account of the consumer is much increased. In fact, there is no exaggeration in stating that a large proportion of the consumers, through their own mismanagement, pay twice as much as there is any occasion for, considering the amount of light obtained, all of which could be saved by using a proper burner, and a correct adjustment and control of the pressure.

The most important requisites for good burners are that the orifices where the gas issues should be perfectly regular in size, and of a proper size to permit it to issue with a very low pressure. And these conditions should be adhered to, whatever the kind of burner may be, whether the argand, bats-wing, fish-tail or single jet, etc.

If the orifices are too small a high pressure is required to expel the gas, and the light is diminished just in proportion to the increased pressure. In such burners the flame will have a blueish tinge, and the lower part will be of a deep blue color, giving but little light in proportion to the gas consumed. As an example, an argand of fifteen holes passing five feet of gas at 1-10th pressure, yielding a light of 12 candles will, if the orifices are reduced, to pass the same amount of gas per hour at 5-10 pressure, only give the light of six candles—a loss of 30 per cent. Hence we see that the light to be obtained from a given quantity and quality of gas is entirely dependent on the burner employed. This demonstrates the necessity of having proper burners, and shows clearly how by negligences on this point, the consumer may find his gas bills increase, in what appears to him a very mysterious manner.

SIZE OF FLAME.

It is a mistake to suppose that the amount of light obtained will be in proportion to the quantity of gas issuing from a burner. There is a particular point in the consumption of any class of burner where the maximum of light is derived, and any deviation from this entails loss.

As an example, if an argand burner consumes five feet per hour, giving the light of 12 candles, be reduced, so that only three-fourths of that quantity is burned, then the light instead of being equal to nine candles, the theoretical proportion, will be six candles only, being a positive loss of 36 per cent. This reduction may be continued with even greater proportionate losses. A five feet bat-wing or fish-tail burner will give a maximum of light in proportion to the gas consumed, compared with any less sized burner, and it will be found in practice the larger sized burners are the most economical.

The large sizes giving as high as 200 to 300 per cent advantage in light as compared with the smallest sizes.

As an example: a bats-wing burner consuming two feet per hour gives the light two and a quarter candles only, while a burner consuming seven and one-half feet per hour gives the light of twenty-two candles, the pressure being uniformly four-tenths of an inch.

The knowledge of these facts is of importance to the consumer, who may, in his endeavor to economize, obtain results directly opposite to his anticipations. It is more economical to have one good large gas-light than several small ones.

GLOBES, GLASSES, ETC.

Although chimneys are essential to argand burners, and globes also in many places where fish-tail burners are used, and the ornamental effect is pleasant. Still they are detrimental to the diffusion of the light of gas.

A clean glass globe obstructs about	.	.	12	p. c.
A clean globe engraved with flowers about			24	"
A globe ground all over	"	"	40	"
An opal globe	"	"	60	"

Hence is apparent the folly of using elaborately engraved and ground globes or shades, where it is desirable to economize. If engraved at all, the upper portion should be embellished, while the lower part should be left clear for the free passage of light.

IMPROVED KALEIDOSCOPE.

The kaleidoscope, since first invented by Doctor Brewster, has been regarded with wondor and admiration as a means of instruction for children and adults. Until recently very few, if any, improvements have been made in this instrument; and, for lack of a little study and the proper application of well known principles, it has been generally regarded as merely a child's toy. It has been so

constructed that only transparent or translucent objects could be shown in it; and hence its capacity was exceedingly limited. The American Kaleidoscope Manufacturing Co., as the result of long study and persevering efforts, have produced an article far superior to anything hitherto known, and worthy of the attention of all classes of our citizens. It is so constructed that opaque as well as transparent objects can be exhibited in it, the rays of light being reflected by them instead of transmitted, and admit of the use of any natural objects, such as flowers, fruit, insects, or precious stones, of which nature provides such varied and beautiful specimens. With a small selection of flowers, the number of changes that can be made, by simply revolving the instrument, is so great that it may well be called innumerable, and no pen can paint, or mind conceive, figures that, in point of beauty, or symmetry of form, or the harmonious blending of colors, can at all compare with those shown in the improved kaleidoscope.

In this simple contrivance the painter may find beautiful subjects, or hints for embellishing, and the designer for prints, carpets, or embroidery an endless variety of patterns, surpassing in beauty anything ever before imagined. Its use, however, is not to be confined to artists. Indeed, its true place is to be found in the parlor or study, where its utility, in the cultivation of a correct taste for the beautiful, cannot be over-estimated. At great expense we provide our parlors with engravings, handsomely bound books, albums, etc, more or less fine according to our ability, all for the amusement and gratification of our friends. But this kind of amusement is necessarily limited either by our ability to procure or exhibit such articles. In the improved kaleidoscope, at a trifling expense, we are provided with an absolutely endless number of the most beautiful pictures imaginable.

The American Kaleidoscope Manufacturing Co. have made Messrs. J. B. Beers & Co., 95 Maiden Lane, New York their general agents for the United States.

GASHOLDER HOUSES.

Passing through New Haven a few days since, we took occasion to look at the new brick gasholder house of the New Haven Gas Company. It is circular, about 95 feet in diameter, and 45 feet high to the eaves, and surmounted by a high conical roof. It accomodates within, a telescopic gasholder 90 feet in diameter, with a rise of 40 feet. The wall is strengthened and relieved on the outside with 14 heavy brick pilasters, each alternate one hollowed on the inside to receive the counterweights. There is provision for two sheaves at each point, that within the hollow of the pilaster for the purpose of counterbalancing the outer section of the gasholder, and another higher up and projecting directly over the inner section.

Gasholder houses are rarely used, the general opinion being that their convenience and utility are counterbalanced by the extra cost. We have heard of very few such buildings, mostly in northern latitudes where many and frequent falls of snow encumber and endanger the exposed gasholder; as at Concord, N. H., Oswego, N. Y., etc. There is also one at Bridgeport, Conn. The ground taken by our Connecticut friends, however, is that the extra expense is not really so great as is commonly supposed; the total cost of the New Haven building being to that of an iron hanging frame and columns in the usual way, as about $20,000 to $15,000. The added 33⅓ per cent. appears to them an economical provision against all the interruptions, expenses, damages and detriment to gas, resulting from the action of storms, snow and violent changes of temperature.

RECENT PUBLICATIONS.

Putnam's Magazine.—The reappearance of this favorite monthly, in its cheerful and familiar garb of green, is like the return of an old friend whom we had mourned as dead. It is hoped that the new series will indicate by its quality a growth in the literary resources and stamina of the country, and we add our private hope and prayer that it may *not* give indication of the enormous growth of flippant and smart prattle which seems to pass for vivacity with the editors of our leading monthlies—monthly, perhaps we should say—most of which would be outdone by a verbatim report of the table-talk in thousands of families, and we believe that no influence, personal or pecuniary, could engineer into the pages of any but the most ephemeral of European periodicals. It is time we had something more creditable in light writing, or else something less of it.

Prang's Chromo.—The first number of a neatly printed little paper entitled *Prang's Chromo* has been placed on our table. It is published by L. Prang & Co., the well known chromo-lithographers, 159 Washington-street, Boston, who, having met with marked success in their artistic skill, have been induced to issue the same. In our next we shall publish an interesting article from it entitled "How Chromos are Made."

☞ The attention of gas men and others interested in the manufacture of gas is directed to the communications on page 180, urging the carrying out of a plan suggested by a former correspondent, for holding a convention. The subject is one which should engage the attention of all concerned, as it will be the means of bringing about a mutual interchange of their views and opinions, thereby proving of great service to themselves and the country at large.

☞ Semi-Metallic Lamp Chimneys.—Those who do not enjoy the blessings of gas-light and who depend upon lamps to illuminate that portion of the 24 hours when Old Sol is absent, will appreciate the annoyance, inconvenience and *cost* arising from the breakage of the glass chimney, the use of which is essential to the beauty and purity of the light. To all such we recommend the simple but excellent invention called "Brown's Metal Top Lamp Chimney." It is easily cleaned, and with care will last a life-time.

Chas. H. Reichman, 45 Fulton-street, New York, is sole agent for this valuable article. See advertisement on page 189.

☞ How to Prevent Gas Meters from Freezing.—In the excessively cold weather we are now having, and likely to have for some time, it is incumbent upon gas companies and gas consumers to avoid the freezing of their meters. Alcohol is too expensive in these excise times to employ. But glycerine is cheap, and superior to anything we know of. It is valuable also for air-light machines, and hydraulic presses, etc.

Hartmann & Laist, Cincinnati, O., manufactures this material. L. Bruckman, 67 Wall street, is agent for New York. The advertisement will be found on this page.

HOLIDAY PRESENTS.

For an acceptable holiday present nothing can equal the improved Kaleidoscope. It makes the neatest parlor ornament known, and is got up in sufficiently varied style to suit the wants of all. With a very small selection of flowers, either natural or artificial, placed in a transferring chamber provided for the purpose, an infinite number of the most beautiful figures imaginable can be produced at the pleasure of the observer.

For sale by J. B Beers & Co., 95 Maiden Lane, or at most of the Fancy Goods Stores.

PRICES:

Plain Kaleidoscope with Brass Cap and Eye Piece	$2 00
Plain Cloth " " " " "	1 50
Stamped " " Plated " "	3 00
" Morocco " " " " "	4 50
Silver Plated " Tube " " "	5 00
MOUNTINGS EXTRA.	
Plain	2 00
Plated	4 00

Liberal discounts to the trade. Address

J. B. BEERS & CO.,
95 Maiden Lane.

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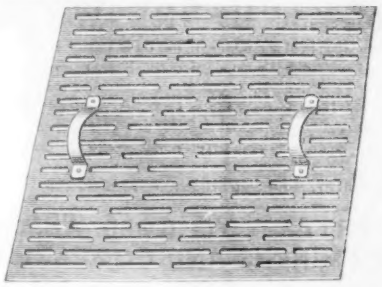

ARNOLD'S METALLIC GAS TRAYS.

These Trays are made of sheet metal galvinized or tinned to prevent oxydization. Warranted to wear longer and to be cheaper in the end than any Tray known. They are light, cheap, easily kept clean, and almost imperishable.

Manufactured and sold by T. G. ARNOLD,
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BENNETT, JOHNSON & CO.,

42 DEY STREET N. Y.,

Manufacturers of the

NEW PATENT BAG-HOLDER AND SHINGLE BRACKET.

This Bag-Holder is emphatically the Farmers and Grain Dealers Friend. Does the work of two boys in holding a bag open, and with it a farmer can bag up grain, potatoes apples, etc., as fast as two men in the ordinary way. It has large sales at the West, where first introduced. Retail price $5. Sent to any address.

THE SHINGLE BRACKET

Is especially adapted for Builders, house Joiners, Masons, and Carpenters. With it a scaffolding can be built in less time upon a roof and with greater safety, and taken down as quickly, without leaving a single nail hole in the roof. Retail price $6 per dozen. Send for illustrated circulars as above. Orders promptly filled, at wholesale and retail.

Manufacturers of the

NEW STEAM COOKING APPARATUS,

which cooks all vegetables and meats together, without flavoring each other, and does away with all offensive odors. Saves labor, fuel and time.

SEEING IS BELIEVING.

One trial will convince any one. Large numbers now in use and everybody pleased; sold low; several sizes—fit any stove—a whole dinner can be cooked on one stove-hole. Orders promptly filled, at wholesale and retail. Send for an illustrated circular, with full particulars. Retail price: 7 in. $4; 8 in. $5; 9 in. $7; 10 in. $10. Sent to any address on receipt of price.

The Cameron Coal Co.,

MINES LOCATED AT

Cameron, Cameron County, Pa.

New York Office, 42 Broadway.

S. L. SIMPSON, President.

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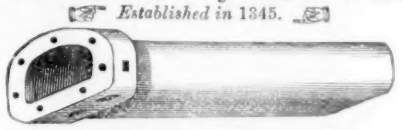

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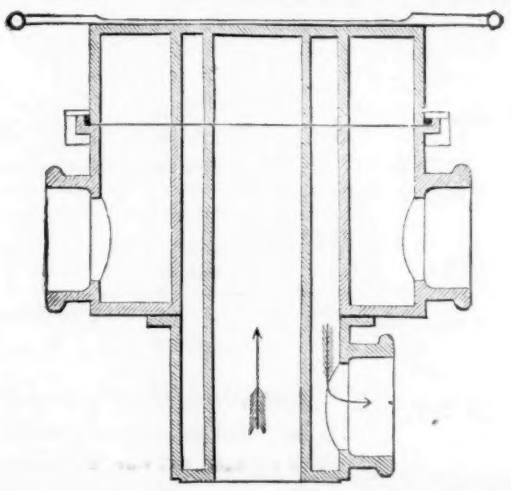

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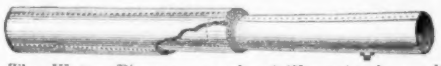

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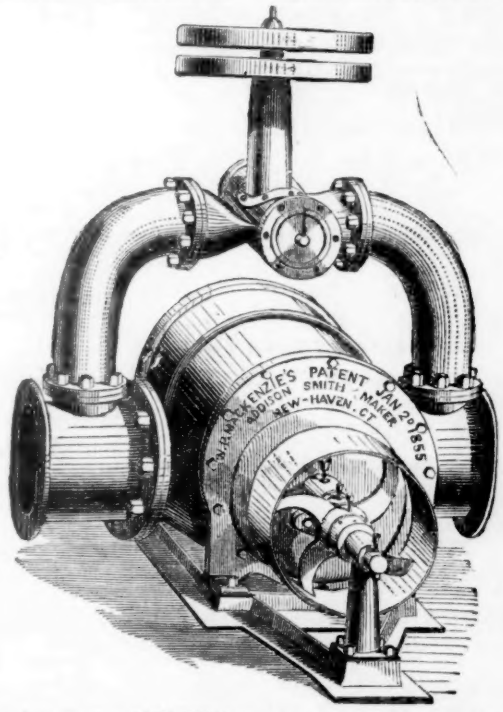

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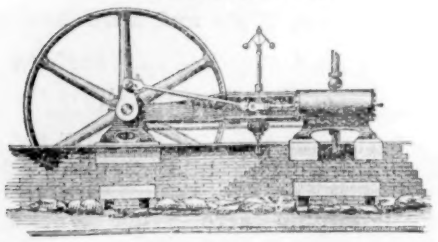

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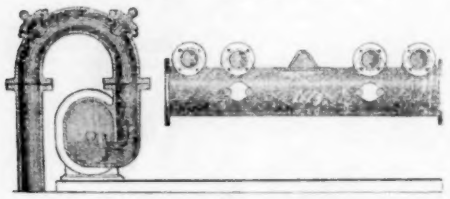

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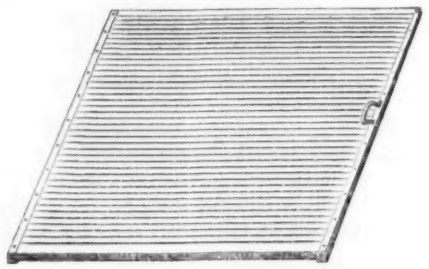

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Station, Sugar House, Street and Coal Oil Lanterns.

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JOINT STOCK COMPANY.

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New York.

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PLASTIC SLATE

FOR

ROOFING & OTHER PURPOSES.

The process of reconstructing Slate Stone from a disintegrated state was

PATENTED FEBRUARY 21st, 1865.

It is a combination of

Pulverized Slate & Viscous Matter,

(the latter possessing qualities of geological and chemical affinity for the former,) and is a development of one of the simple but unalterable tendencies of nature.

As a Roofing Material it Stands Unrivalled.

A mastic—it adapts itself to every shape and slope. Non-combustible, impervious, non-expansive, and undecaying.

Frost does not Crack nor Heat Dissolve it.

The only roofing material ever discovered that will resist the action of the elements as long as the structure it protects. Being susceptible of little, if any wear, from exposure, and

Perfectly Fire-Proof,

It is unequalled as a coating for Railroad and Farm Buildings Fences, Bridges, bottoms of Vessels, Vaults, etc.

EDDY'S

KEROSENE COOKING AND HEATING Stoves and Ranges.

THESE COOKING STOVES WILL

Bake, Boil, Stew, Fry and Roast

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only kerosene stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt-saving and heat-saving invention is Eddy's Patent Kerosene Stove. Taking the cost of running it, and the result attained, it is the best patent in the market."—[Worcester Daily Spy.

Our heating and cooking stoves are very convenient and economical, especially when a fire is required but a few hours at a time.

Orders for stoves may be sent through the American Advertising Agency, 389 Broadway, New York.

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Manufacturers, No. 605 Sixth Ave., New York.
Send for Illustrated Circular. (136

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Something New and Invaluable for Family Use

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space, is portable, and can be attached to a stand or table; weighs about 40 lbs.

It will knit a variety of stitches, the breakage of needles is trifling, the cost of needles is insignificant, and the most delicate material can be knit pure and spotless as the needles are not oiled.

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HIGHEST PREMIUM

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Has only to be seen and operated to be appreciated

Call and see for yourself before purchasing. Please bring samples of various kinds of thread (such as is usually found at stores), and various kinds of fabric, which you know the former most popular sewing machines either cannot work at all, or at best very imperfectly.

SUPERIORITY

over any other machine in the market will be seen at a glance:

1st. It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

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6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, make it equal, if not superior, to six machines combined; for instance, it binds, tucks and sews on the band at the same time, and in fact, the

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as before stated, is equivalent to a combination of any six ordinary machines.

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No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
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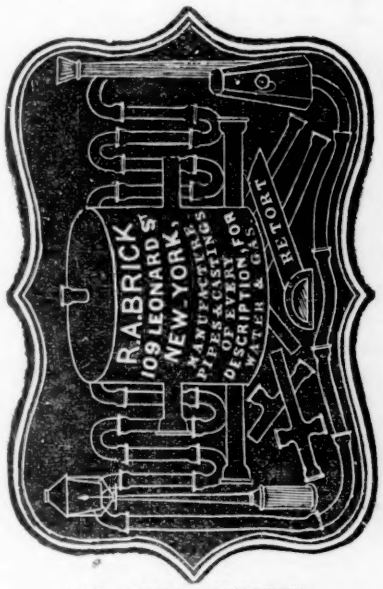

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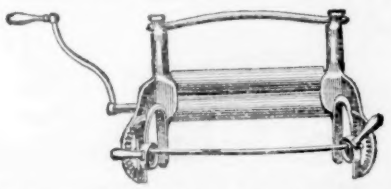
PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog-wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

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Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

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Sample Wringers sent, express paid, on receipt of price.

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The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

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Continue, as heretofore at their old Establishment, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by

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Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality—the number furnished by you to these works is over 5,000.

JOHN C. CRESSON, Engineer;

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of wokmanship and accuracy of registration; they are surpassed by none, and equaled by few manufactories in the Union; we have used meters made by other establishments but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Georgia.

Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

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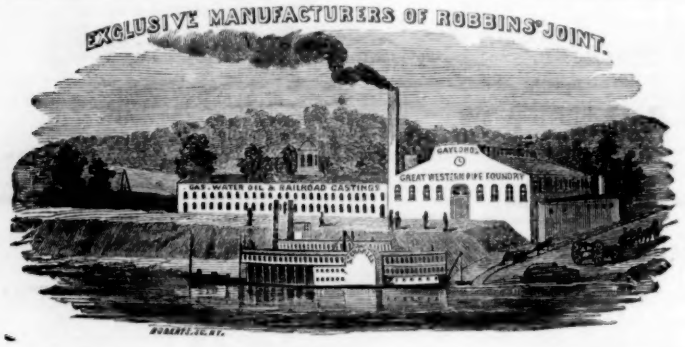

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THE ATTENTION of the public and the trade is invited to our New Scale, Seven Octave, Rosewood Piano Fortes, which for volume and purity of tone are unrivalled by any that have hitherto offered in this market. They contain all the modern improvements, French Grand Action, Harp Pedal, Iron Frame, Over-strung Bass, etc., and each instrument, being made under the supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"
RECEIVED THE HIGHEST PREMIUM AT THE
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Where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvement we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES

No. 1,	Seven Octave,	round corners,	Rosewood, Plain Case,	$300
No. 2,	"	"	" Heavy Moulding	325
No. 3,	"	"	" Louis XIV style	350

a fac-simile of the accompanying cut.

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VALVE WATER METER,

(Used also for Oils and Liquors)

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Manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues, GALVANIZED WROUGHT IRON TUBES,

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of Wrought or Cast-Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal Gas-works,; Cast-Iron Street Mains, Bends, Branches, Drips, &c.

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Also, Heavy & Light Castings of every description, No. 207 North Water street and 206 North Wharves, Philadelphia.

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THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

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Late Asst. Engineer of the Philadelphia Gas-works
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For Country Residences, Public Buildings, &c.,

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—Adapted for Mining and Fire Purposes—and

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Photometers, Pressure Registers, Indicators, and Gauges, Governors, Meter Provers, Centre Seals, Fluid Gauges, &c.

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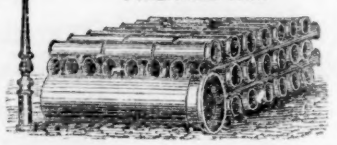

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New Family

SEWING MACHINE

Should be known in

IN EVERY TOWN.

To accomplish this at once and save the expense of a *Travelling Agent*, we offer thus, viz:

Any one sending us orders for two machines shall receive one machine free of charge. This proposition cannot avail after we have appointed a local agent in the town.

We have now completed our *new manufacture* at a cost of some $200,000—introducing *new patents*, and such important improvements, that without fear we are able to offer the following stringent guarantee, viz: After a fair trial, if any purchaser does not prefer the FINKLE & LYON FAMILY SEWING MACHINE to any other, he can return it and have back his money.

This machine has taken many of the HIGHEST PRIZES; *is less complicated than any other first class machine; does a wider range of work without changing; requires no taking apart to clean or oil, no "lessons" to set needle, regulate tension or operate machine.*

Our new Manufacturing Machine is sold on the same terms as the Family Machine.

Please send for a circular with samples of sewing.

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No. 531 BROADWAY, NEW YORK.

Great Improvement IN Sewing Machines.

EMPIRE SHUTTLE MACHINE!

Patented February 14th, 1860.

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This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather to the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbers.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,

COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2 Small Manufacturing, with Extension Table, $75
No. 3. Large Manufacturing, with Extension Table, $85
No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably Cash on delivery.

T. J. McARTHUR & CO.,
536 Broadway.

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For the United States and Canada, of

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GERMAN LAVA GAS-TIPS

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LAVA TIP GAS BURNERS,

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Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

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Manufacturer of

GAS-BURNERS,

For Lighting and Heating Purposes.

GAS HEATING AND COOKING APPARATUS; FITTERS' PROVING APPARATUS, &c.

529 Commerce st., bet. Market & Arch,
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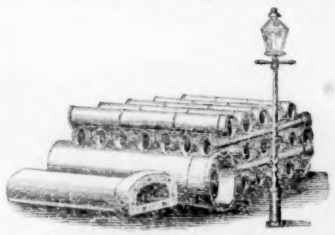
—All kinds of soft, porous stone become hard by white-washing them with fresh-slacked lime. The lime absorbs carbonic acid from the atmosphere, and is converted into carbonate of lime. A portion of this remains in the pores of the stone, and ultimately becomes marble.

LOUISVILLE PIPE WORKS.

Dennis Long, Proprietor.



Cast Iron Gas and Water Pipe of All Sizes Always on Hand.

Retorts.

STOP-VALVES, AND ALL APPURTENANCES FOR EITHER GAS OR WATER WORKS.

All Pipe, &c., Made of the Very Latest Pattern and Improvements.

ALSO MANUFACTURER OF

Steamboat, Portable and Stationery

STEAM ENGINES.

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SAN SALVADOR,
Commander, Joshua Atkins, and
SAN JACINTO,
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Every SATURDAY, from pier 13 N. R.

Have been placed on the route to Savannah by the Atlantic Mail Steamship Company of New York, and are intended to be run by them in a manner to meet the first class requirements of the trade. The cabin accommodations of these ships are not excelled by any Steamers on the coast, and although their carrying capacity is large, their draught of water enables them to insure a passage without detention in the river

San Jacinto,	Saturday, Oct.	6
San Salvador,	..	" 13
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Returning, leave Savannah every Saturday at 3 o'clock, P. M.

Bills of Lading furnished and signed on the Pier.

For further particulars, engagement of Freight or passage, apply to

GARRISON & ALLEN, Agents,
No. 5 Bowling Green.

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OPPOSITION LINE.

TO CALIFORNIA VIA NICARAGUA

SAILING EVERY TWENTY DAYS,

with Passengers, Freight, and United States Mails on the following first class Steamships:

On the Atlantic Ocean.	On the Pacific Ocean.
Santiago De Cuba.	America.
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PASSAGE AND FREIGHT AT REDUCED RATES.

Sailing days from New York.
1867.

February 20th, March 10th and 30th.
" April 20th, May 10th and 30th.

And so on at intervals of twenty days, leaving on the Saturday previous, when a regular sailing day comes on Sunday.

For further information, apply at the Company's office, 177 West-st., corner Warren-st., New York.

66tf D. N. CARRINGTON, Agt.

A sale of rare coins and medals is going on in New York. Some of the specimens date back as far as 771. Scarce American coins are expected to bring higher prices than any others. The half cent of 1842 and that of 1847 have heretofore brought $105 each. A half dime of 1802 has been sold for $350. There is a Maryland penny purchased a number of years ago for £100 in gold, or $700 in currency. Of the silver dollar of 1804 only four specimens are known to be in in existence, and for one of them $1,000 has been several times refused.

A. L. Bogart's Gas Stoves.

The ingenuity of many of our inventive men have been engaged for several years, endeavoring to utilize illuminating gas for heating purposes, as a substitute for solid or liquid fuel, such as wood, coal, oil, petroleum, and other carbonaceous or hydrocarbonaceous matter. The great advantages to be obtained in substituting gaseous fuel must be manifest to all who endure the disagreeabilities of coal dust, ashes, soot, smoke, porterage, and constant attention necessary where solid fuel is used.

If coal gas is properly burned it is capable of evolving an equivalent of heat from fifty to eighty per cent. more than coal when burned in the most improved apparatus—so our experiments prove to us, and our professors and scientific men who have given the subject attention, assert the same.

The principal object to be gained in stoves or apparatus for burning gas for heating, cooking, etc., is to have a perfect combustion, so that the carbon of the gas is fully consumed, in order to get the full equivalent of heat; also to either conduct the products of combustion from the room, or to neutralize them, to prevent odor and other deleterious effects.

Mr. A. L. Bogart, analytical chemist, has lately discovered a method of perfectly consuming the carbon of the gas, and neutralizing the products of combustion of coal-gas when used for heating purposes, so that it may be employed for domestic uses with less injury to the healthfulness of the atmosphere, it is asserted, than by the use of any other kind of fuel. This is a desideratum of great value and importance, because gas stoves as ordinarily used, when the products of combustion passes into the room, are wonderfally deleterious to health.

The accompanying engravings exhibit some of the styles of these stoves. Nos. 3 and 4 are heating stoves. No. X is a fire place heater. The gas is consumed in the drum or stove at the bottom, while the products of combustion first ascend to the top of the stove, and then are deflected upon pans or vessels containing quicklime, or other salts of lime, which chemically neutralizes the carbonic acid and other deleterious products of combustion, before passing into the room.

The patent for these stoves was granted November 26th, 1847, and the various styles of stoves and other gas-heating apparatus for almost every purpose, may be seen at the salesrooms of the Metropolitan Gas Stove Manufacturing Company, No. 702 Broadway, N. Y.

3

X

4

A. L. BOGART'S GAS STOVES.

Miscellaneous Items.

—Gilded silk threads, when exposed to an intense electrical current, are acted upon in a singular manner. The gold which covers them is volatilized without the threads being injured by the heat.

—The petroleum oil belt in California extends from the county of Humboldt on the north to Los Angelos on the south, a distance of over seven hundred miles. The sandstone and shale of the mountains in this vicinity is so strongly saturated with petroleum oil as to burn readily in a furnace.

—By a recent act of the British Parliament, Brewers, who close their factories and workshops on Saturdays, till sunset, are permitted to open them from from sunset till nine o'clock, "for females and young persons" to work till that hour.

—A cup of tea contains volatile oil, chlorophyl, wax, rosin, gum, tannin, theine, extractine, apotheme, albumen, sulphur, phosphorous, chloride of potassinm, oxide of iron, carbonate, sulphate and phosphate of lime, carbonate of magnesia, manganese and sillicate.

—Recent experiments conducted by the French Government, show that the water-tanks on board a ship should be coated inside with tin, and not with galvanized iron, as at present. It was discovered that the water, under certain various conditions, dissolved tle zinc off the iron, and rendered it injurious to health.

—The New York and New Haven Railroad have just introduced a new system of warming their passenger cars, by means of hot water circulating through pipes placed under each seat. By following this plan all the heat is economized and thus keeping the feet of the passengers warm, the whole body experiences an agreeable sense of comfort,

—The great Parisian Company for lighting by gas, effects every day more and more progress. Thus, in 1864 the consumption of the gas produced by the company was 109,708,000 cubic metres of gas (a metre is 40 inch English). This total was an augmentation of 8,776,000 cubic metres (or 8.70 per cent.) over the consumption of the preceding year. Every day a fresh advance is effected in the manufacture of gas, and the production becomes more and more abundant and more economical.

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